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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/787,303

02/27/2004

Takashi Tomiyama

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EXAMINER

BUTLER, PATRICK NEAL

ART UNIT

PAPER NUMBER

1742

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/787,303	Applicant(s) TOMIYAMA ET AL.	
	Examiner Patrick Butler	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to Claim 1, the limitation in lines 7 and 8 of “where a temperature of the isocyanate compound is from 80°C to 100 °C”, the Specification as originally filed does not support the range principally because only the endpoints are supported (see Specification, Table 1). Claim 3 is rejected via its dependency.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oki et al (U.S. Patent 4,825,249) in view of Ferrigno (US Patent No. 3,024,209), Cahill et al

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(U.S. Patent 3,387,071), and Miura et al. (JP 2001-343874 A, machine translation relied upon for translation).

With respect to Claims 1 and 3, Oki discloses a process for producing a cleaning blade reading on claim 1. Oki teaches providing a urethane cleaning blade for use with a photoelectronic copying machine and coating it with a mixture that includes a diisocyanate compound to deliver wear resistance and lubricating properties (see col. 1, lines 60-68; col. 2, line 47 through col. 3, line 19; and col. 3, lines 58-63). Oki further teaches that the isocyanate compound is caused to react (cure) on the surface of the urethane substrate with unreacted elements thereon (see col. 2, lines 31-46). Oki teaches that the coating is applied by dipping (impregnating, immersing), as required by claims 1 and 3 (see col. 3, lines 38-43). Oki's treatment causes the surface layer to form allophanate bonds to the extent that only some of the layer is left unreacted (formed chiefly of allophanate linkages) (see col. 2, lines 15-23).

Oki does not disclose having water in the blade being treated but also does not appear to expressly teach that the urethane has a water content of 1% by weight or less.

Ferrigno teaches that additives of a reaction with urethane and isocyanate should be free of moisture, or less than about 1% free moisture, due to its reacting with the isocyanate (see col. 5, lines 51-57). Moisture was avoided via drying (see col. 9, lines 39-46). When these two aspects are considered together, Ferrigno's teaching is therefore to dry the agents in a reaction system of isocyanate and urethane.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Ferrigno's teaching of drying to prevent moisture in a reaction system of isocyanate and urethane with Oki's method of reacting urethane and isocyanate in order to minimize isocyanate unable to react with the urethane.

Oki does not teach removing excess compound with warm or hot air having a temperature sufficient to render the compound flowable, as required by claim 1.

Cahill teaches forming a urethane object, in this case a fiber, by using an excess of an isocyanate compound and removing this excess with hot air in reference claims 4 and 5. Herein Cahill refers to excess extender, making reference to the reaction functionality of the isocyanate. Using a temperature above the melting point of the isocyanate compound, thereby maintaining flowability for the purpose of sheeting the fluid, would have been obvious as a matter of choice to one skilled in the art.

Oki and Cahill are combinable because they are concerned with a similar technical field, namely, urethane compositions. One of ordinary skill in the art at the time of the invention would have found it obvious to include in the method of Oki the isocyanate removal processes as taught by Cahill. The motivation to do so would have been to prevent deterioration of lubricating properties by any unreacted end reactive groups remaining (see lines 53-55 in column 3 of Oki).

Oki does not appear to expressly teach that the impregnating isocyanate compound is 80-100 °C and that the isocyanate compound is 4,4'-diphenylmethanediisocyanate.

Miura teaches impregnating a polyurethane resin cleaning blade with 4,4'-diphenylmethane diisocyanate (4,4'-diphenylmethanediisocyanate) at less than 100 °C (see [0048], [0052], and [0069]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the isocyanate of Miura at the temperature of Miura in the process of Oki in order to provide a cleaning-blade surface with a proper coefficient of friction and to avoid heat deterioration of the isocyanate (see [0069] and [0051]).

Response to Arguments

Applicant's arguments filed 21 September 2010 have been fully considered, but they are not persuasive.

Applicant argues with respect to the 35 U.S.C. § 112, second paragraph, rejections. Applicant's arguments appear to be on the grounds that:

1) Applicant's amendment to Claim 1 to remove the average roughness limitation overcomes the 35 U.S.C. § 112, second paragraph, rejections.

Applicant argues with respect to the 35 USC §103(a) rejections. Applicant's arguments appear to be on the grounds that:

2) Oki's preferentially dipping may not be sufficient to impregnate an isocyanate compound into the blade.

3) Oki does not teach the claimed temperature range of the isocyanate and the specific isocyanate compound.

The Applicant's arguments are addressed as follows:

1) In view of Applicant's amendment to Claim 1 to remove the unclear claim language, the Examiner withdraws the previously set forth 35 U.S.C. § 112, second paragraph, rejection as detailed in the Claim Rejections – 35 U.S.C. § 112 section of the Office Action dated 23 June 2010.

2) Oki teaches saturating (impregnating the chemically unsaturated surface of the blade (see col. 2, lines 31-46).

3) Applicant's arguments with respect to the newly claimed limitations of temperature range of the isocyanate and the specific isocyanate compound have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-8517. The examiner can normally be reached on Mon.-Thu. 7:30 a.m.-5 p.m. and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. B./
Examiner, Art Unit 1742

/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1742